



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/709,514	11/13/2000	Kiyomi Tamagawa	Q61700	4495

7590 05/03/2004
Sughrue Mion Zinn Macpeak & Seas PLLC
2100 Pennsylvania Avenue N W
Washington, DC 20037-3213

EXAMINER

SUKHAPHADHANA, CHRISTOPHER T

ART UNIT	PAPER NUMBER
----------	--------------

2625

DATE MAILED: 05/03/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/709,514

Applicant(s)

TAMAGAWA ET AL.

Examiner

Christopher T. Sukhaphadhana

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,10,11,15-17 and 19-22 is/are rejected.
- 7) ☒ Claim(s) 3-5,9,12-14 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The Amendments filed 23 January 2004 and 20 February 2004 have been entered in full.
2. Based on Applicant's amendments, the objections to the drawings and the specification and the rejections under 35 USC 112 are withdrawn. However, a new drawing objection is made below.

Drawings

3. The drawings were received on 20 February 2004. These drawings are acceptable.
4. The drawings are objected to because in Fig 11, ref d3, "determine" is misspelled. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Response to Arguments

5. Applicant's arguments regarding the prior art rejections of **claim 1** on pages 13-15 of the Amendment filed 23 January 2004 have been fully considered but they are not persuasive.
6. Applicant argues in substance that:
 - a. **Schwartz does not teach or suggest defining an association between two sets of color data, as recited in the claim.**

The Examiner agrees that the section cited (col 4, lines 36-61) discuss producing a set of gray patches and a set of color patches from given nominal color values using a

Art Unit: 2625

previously selected base output profile. However, the following section (paragraph bridging col 4-5) describes how those patches are measured by a calorimeter or a color scanner. These measured values are in a form such that they can be compared to their expected values (col 5, line 10). Thus, this whole process produces color data of the measured values in one color space associated with color data of the patches in another color space. Stated another way, in reference to Schwartz, Fig 1, the Schwartz process (roughly shown by the pathway between ref no 16, 18, and 12) defines an association between the output device color space (ref no 16) and the computer color space (ref no 12).

b. Schwartz does not teach or suggest a profile producing step as recited in the claim.

As stated previously, Schwartz's invention measures gray and color patches to produce measurements (read as color association definition). The invention uses the measurements to create a tuning function that is used to adjust the output profile (read as first profile) so that it more accurately characterizes the device (Schwartz, col 3, line 36). In col 5, line 19, once the tuning transform is produced, it is used to generate 56 a new tuned profile 70, that is, compose the existing (output profile) and tuning transform. Thus, the new tuned profile 70 is produced by correcting the output profile in accordance with the measurements, and this process reads on the profile producing step as claimed.

c. The various base profiles are not finer than the color value targets.

Schwartz, Fig 5(a), (b), and (c), shows a curve for each color component as a solid line (col 12, line 60) and each of the +'s corresponds to a patch value (col 12, line

Art Unit: 2625

59). While the profile curve for each color component is stored as a set of points labeled P1 ... P8 (col 12, line 63), all calculations are made with regards to the line (col 13, line 2), and not the points. Therefore, the profile as represented by the curve/line is much finer than the +’s representing the color value targets.

7. Applicant's arguments regarding the prior art rejections of **claim 6** on page 15 of the Amendment filed 23 January 2004 have been fully considered but they are not persuasive.

8. In addition to the arguments presented for claim 1 already addressed above, Applicant argues in substance that:

d. **Schwartz does not teach a plane representing a color axis of the first color space and a color axis of the second color space, as recited in the curve arithmetic operation operating step.**

Schwartz, Fig 5(a), (b), and (c), shows a plane representing a color axis of a first color space and a color axis of a second color space, as recited. Note that one axis is based on “Measurement” which represents the “output” color space, while the other axis is based on “Simulation” which represents the “computer” color space.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Art Unit: 2625

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. **Claims 1-2, 6-7, 8, 10-11, 15** are rejected under 35 U.S.C. 102(e) as being anticipated by Schwartz (U.S. Patent 6,075,888, previously cited, "Schwartz").

11. In regards to **claim 1**, Schwartz discloses a profile producing method (Fig 2) of producing a profile (ref no 70, Fig 2) defining an association between a first color data representative of coordinates on a predetermined first color space and a second color data representative of coordinates on a second color space independent of output devices, for colors appearing on a color image outputted from an output device for outputting the color image in accordance with image data including the first color data, said profile producing method comprising: a color association definition obtaining step (col 4, lines 36-61) of obtaining a color association definition, in which distribution of coordinate points is relatively rough (col 4, line 40), defining an association between the first color data representative of coordinates on the first color space and the second color data representative of coordinates on the second color space; a profile selection step (col 4, lines 23) of selecting a first profile from among a plurality of profiles, in which distribution of coordinate points is relatively close as compared with the color association definition obtained in said color association definition obtaining step, defining an association between the first color data representative of coordinates on the first color space and

Art Unit: 2625

the second color data representative of coordinates on the second color space; and a profile producing step (col 5, lines 18-24) of producing a second profile defining an association between the first color data representative of coordinates on the first color space and the second color data representative of coordinates on the second color space, by correcting the first profile (col 5, lines 15-18) selected in said profile selection step in accordance with the color association definition obtained in said color association definition obtaining step.

While the section cited (col 4, lines 36-61) discuss producing a set of gray patches and a set of color patches from given nominal color values using a previously selected base output profile. However, the following section (paragraph bridging col 4-5) describes how those patches are measured by a calorimeter or a color scanner. These measured values are in a form such that they can be compared to their expected values (col 5, line 10). Thus, this whole process produces color data of the measured values in one color space associated with color data of the patches in another color space. Stated another way, in reference to Schwartz, Fig 1, the Schwartz process (roughly shown by the pathway between ref no 16, 18, and 12) defines an association between the output device color space (ref no 16) and the computer color space (ref no 12).

As stated previously, Schwartz's invention measures gray and color patches to produce measurements (read as color association definition). The invention uses the measurements to create a tuning function that is used to adjust the output profile (read as first profile) so that it more accurately characterizes the device (Schwartz, col 3, line 36). In col 5, line 19, once the tuning transform is produced, it is used to generate 56 a new tuned profile 70, that is, compose the existing (output profile) and tuning transform. Thus, the new tuned profile 70 is produced by

Art Unit: 2625

correcting the output profile in accordance with the measurements, and this process reads on the profile producing step as claimed.

Schwartz, Fig 5(a), (b), and (c), shows a curve for each color component as a solid line (col 12, line 60) and each of the +’s corresponds to a patch value (col 12, line 59). While the profile curve for each color component is stored as a set of points labeled P1 ... P8 (col 12, line 63), all calculations are made with regards to the line (col 13, line 2), and not the points. Therefore, the profile as represented by the curve/line is much finer than the +’s representing the color value targets.

12. In regards to **claim 2**, Schwartz further discloses the color association definition obtaining step causing said output device to output a color chart (col 4, lines 44-48) composed of a plurality of color patches associated with coordinate points more roughly distributed as compared with a distribution of the coordinate points defined in association by said first profile, on the first color space, and measures the plurality of color patches (col 4, line 63) constituting the color chart outputted from said output device to determine each of the second color data representative of each of the coordinates on the second color space, on each color patch, so that a color association definition, defining an association between the first color data representative of the coordinates on the first color space, wherein a distribution of coordinate points is more rough as compared with the first profile, and the second color data representative of coordinates on the second color space, is determined (col 5, lines 15-17, tuning transform F).

13. In regards to **claim 6**, Schwartz discloses a profile producing method (Fig 2) of producing a profile (ref no 70, Fig 2) defining an association between a first color data representative of coordinates on a predetermined first color space and a second color space data

Art Unit: 2625

representative of coordinates on a second color space independent of output devices, for colors appearing on a color image outputted from an output device for outputting the color image in accordance with image data including the first color data, said profile producing method comprising: a profile obtaining step (col 4, line 23) of obtaining a first profile defining an association between the first color data representative of coordinates on the first color space and the second color data representative of coordinates on the second color space; a color association definition obtaining step (col 4, lines 36-61) of causing said output device to output a color chart (col 4, lines 44-48) including a plurality of color patches associated with coordinate points more roughly distributed (col 4, line 40) as compared with a distribution of the coordinate points defined in association by said first profile, on the first color space, and measuring (col 4, line 63), of the plurality of color patches constituting the color chart outputted from said output device, the plurality of color patches associated with coordinate points more roughly distributed as compared with a distribution of the coordinate points defined in association by said first profile, to determine each of the second color data representative of each of the coordinates on the second color space, on each color patch, so that a color association definition, defining an association between the first color data representative of the coordinates on the first color space, wherein a distribution of coordinate points is more rough as compared with the first profile, and the second color data representative of coordinates on the second color space, is determined (col 5, lines 15-17, tuning transform F); a curve arithmetic operating step (col 6, lines 28-30, and col 7, lines 1-3) of performing on each combination of each of a plurality of color axes of the first color space and each of a plurality of color axes of the second color space an arithmetic operation for determining a curve formed through coupling relatively small number of points

Art Unit: 2625

extracted from the color association definition, which are plotted on a plane represented by a color axis of the first color space and a color axis of the second color space, while reflecting a non-linearity of a curve consisting of a relatively large number of points extracted from the first profile, which are plotted on the plane; and a profile producing step (col 5, lines 18-24) of producing a second profile defining an association between the first color data representative of coordinates on the first color space and the second color data representative of coordinates on the second color space in accordance with an assembly of curves formed through coupling points extracted from the color association definition obtained in said color association definition obtaining step (col 5, lines 15-18).

14. In regards to **claim 7**, Schwartz further discloses the curve arithmetic operating step modifying (col 5, lines 37-40, col 7, lines 1-3, and the paragraph bridging col 12-13) on said each combination the curve consisting of a relatively large number of points extracted from the first profile in such a manner that relatively small number of points extracted from the color association definition are coupled with one another in accordance with a ratio of the second color data extracted from the color association definition, which corresponds to an identical first color data, and the second color data extracted from the first profile, so that an arithmetic operation for determining a curve formed through coupling relatively small number of points to one another is executed.

15. In regards to **claim 8**, Schwartz further discloses in col 5, lines 40-50, the curve arithmetic operating step performing on said each combination a linear interpolation for the ratios associated with a plurality of first color data to determine each ratio associated with each value of the first color data, so that an arithmetic operation for moving points constituting a

Art Unit: 2625

curve consisting of relatively large number of points extracted from the first profile is executed in accordance with the ratio.

16. In regards to **claim 10**, Schwartz further discloses in the paragraph bridging col 13-14 and col 4, lines 36-61, the first color space being defined by color axes of four colors of cyan C, magenta M, yellow Y and black K, and said color association definition obtaining step adopts, as said color chart, a color chart composed of color patches corresponding to coordinate points not less than three points, which are designated on each axis coupling vertexes with one another of a cubic area capable of representing a color by said output device, of each subspace where the first color space is divided into a plurality of sub-spaces defined by color axes of three colors of C, M, Y, which are associated with a plurality of discrete coordinate points on a color axis of K color, respectively, and causes said output device to output said color chart.

17. In regards to **claim 11**, all the elements set forth in this claim have been addressed in the argument of claim 1.

18. In regards to **claim 15**, Schwartz further discloses the profile selection section comprising a display (ref no 12, Fig 1) for displaying a color association definition obtained by said color association definition obtaining section and a graph (Figs 5) showing a change of dot gain quantity of said plurality of profiles, and an operating section (col 4, lines 21-35) for selecting a desired profile from among said plurality of profiles as the first profile, and wherein said profile selection section selects the first profile in accordance with an operation of said operating section.

Art Unit: 2625

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. **Claims 16, 17, 19, and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz (U.S. Patent 6,075,888, previously cited, "Schwartz") as applied to claims 1 and 11 above, in combination with Weichmann et al (U.S. Patent 6,580,524 B1, made of note in previous Office Action, "Weichmann").

21. In regards to **claim 16**, Schwartz does not expressly disclose the profile selection step selecting the first profile according to the color association definition.

Weichmann teaches selecting a first profile according to a color association definition (col 4, lines 36-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Weichmann's teachings into Schwartz's invention.

The suggestion/motivation for doing so would have been to properly address external parameters (col 4, line 38) such as machine condition and knowledge of operating materials (col 7, line 45).

Therefore, it would have been obvious to combine Schwartz with Weichmann to obtain the invention as specified in claim 16.

22. In regards to **claim 17**, Weichmann further discloses in col 7, line 47, the profile selection step determining a difference between the color association definition and each of the plurality of profiles and selects one of the plurality of profiles having a smaller difference as the first profile.

23. In regards to **claim 19 and 20**, all the additional limitations have been addressed in the arguments of claims 16 and 17, respectively.

24. **Claims 21 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz (U.S. Patent 6,075,888, previously cited, "Schwartz") as applied to claims 1 and 6 above, in combination with Vigneau et al (U.S. Patent 6,008,907, made of note in previous Office Action, "Vigneau").

25. In regards to **claim 21**, Schwartz does not expressly disclose the predetermined color space being defined by four colors of cyan, magenta, yellow, and black, and the second color space being defined by chromaticity values of one of RGB and CIELAB.

However, Schwartz does not limit his invention to a particular set of color spaces (col 3, line 40, and col 15, line 6).

Vigneau teaches cyan, magenta, yellow, and black as a predetermined color space (col 2, line 51), and $L^*a^*b^*$ (a.k.a. CIELAB) as a second color space (col 2, line 53).

It would have been obvious to one of ordinary skill in the art to utilize Vigneau's teachings into Schwartz's invention.

The suggestion/motivation for doing so would have been to tune Schwartz's invention towards a CMYK and CIELAB system.

Therefore, it would have been obvious to combine Schwartz with Vigneau to obtain the invention as specified in claim 21.

26. In regards to **claim 22**, all the additional limitations have been addressed in the argument of claim 21.

Allowable Subject Matter

27. Claims 3-5, 9, 12-14, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

28. Applicant's amendment regarding claims 16-22 necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

29. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is (703) 306-4148. The examiner can normally be reached on 9a-5p M-F.

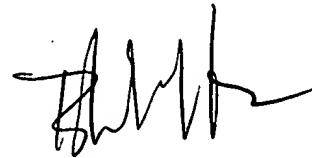
Art Unit: 2625

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CTS

CTS



BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600